Operable Unit 5

ELMENDORF AIR FORCE BASE, ALASKA

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Active Source Areas: ST37.

Closed Source Areas: ST38, SS42, SD40, ST46, SS33.

Contaminant Sources: Fuel and solvent releases.

Media Affected: Groundwater, soil, and surface water.

Contaminants of Concern Outlined in the Operable Unit 5 Record of Decision: *Operable Unit 5 Groundwater:* Trichloroethene, benzene, diesel-range organics, and gasoline-range organics. *Operable Unit 5 Surface Water:* Gasoline-range organics. *Operable Unit 5 Soil:* Diesel-range organics.

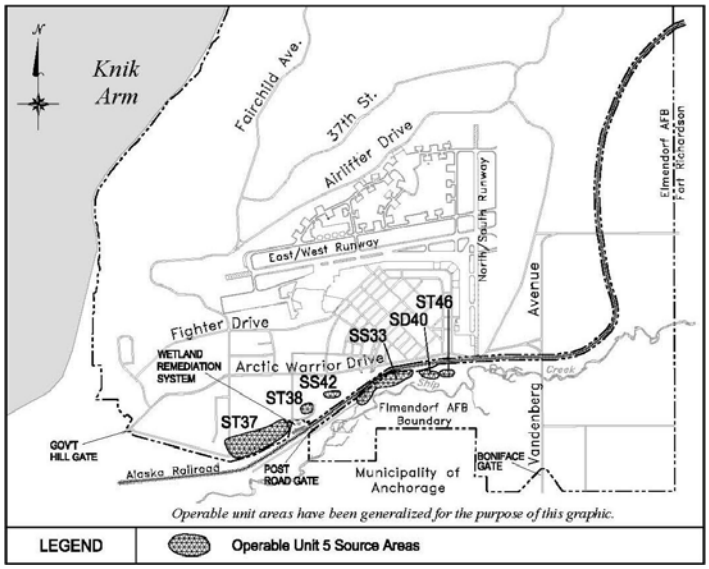
Status: Groundwater monitoring is ongoing at ST37 and the Wetland Remediation System is operating to collect and treat surface water emanating from seeps on the Operable Unit 5 bluff. ST38, SS42, SD40, ST46, and SS33 have been designated no further action. Land use controls restrict use of shallow groundwater.

Site Description

Location: Operable Unit 5 is located along the southern boundary of Elmendorf Air Force Base to the north of Ship Creek. Operable Unit 5 covers an area more than 7,000 feet long and 1,200 feet wide. It is believed that 90 percent of the shallow groundwater aquifer flowing through Elmendorf Air Force Base flows into Operable Unit 5. Operable Unit 1, Operable Unit 3, Operable Unit 4, and the

Key Milestones

ACTIVITY	DATE
Federal Facilities Agreement Signed	November 1991
Management Plan	July 14, 1992
Remedial Investigation / Feasibility Study	March 4, 1994
Record of Decision	February 1, 1995
Remedial Design / Action Scope of Work	February 22, 1995
Remedial Design Completion	January 15, 1995
Remedial Action Start	July 15, 1996
Remedial Action Report	July 21, 1998
First Five-Year Remedy Review	October 20, 1998
Second Five-Year Remedy Review	December 17, 2003



State Program Sites are sources for some of the contamination detected in Operable Unit 5 groundwater. Regardless of the origins of these sources, groundwater contamination detected at Operable Unit 5 will be addressed through Operable Unit 5 remedial actions.

Contamination Overview: Soils at ST38, SS42, SD40, ST46, and SS33 were approved for no further action and the associated Decision Document for each of these sources was issued in August 1994. The February 1995 Record of Decision for final remedial action at Operable Unit 5 stipulated the cleanup of soils at ST37 and the onset of sampling activities designed to monitor the natural degradation of contaminants in groundwater and surface water. Hence, approximately 3,000 cubic yards of soil contaminated with fuels at ST37 were excavated and treated. In addition, a Wetland Remediation System has been constructed to clean contaminated groundwater seeps.

During site investigations conducted at Operable Unit 5, the Base discovered several groundwater seeps that were contaminated with trichloroethene. The sources of this contamination were upgradient groundwater plumes located on Elmendorf Air Force Base. The seeps in the eastern area of Operable Unit 5 flow into a beaver pond where natural attenuation degrades the contamination before it reaches Ship Creek. To prevent any contamination from reaching Ship Creek, the Air Force

leased land from the Alaska Railroad Corporation and designed and built the aforementioned Wetland Remediation System. This system emulates the Beaver Pond's function, in that it collects contaminated surface water and retains this water until natural process break down contaminants present.

Contaminants of Concern

Trichloroethene is the primary contaminant of concern at Operable Unit 5. It is monitored in groundwater and surface water. Remaining surface water contaminants of concern include total aromatic hydrocarbons and total aqueous hydrocarbons. Trichloroethene sources are located upgradient of the operable unit in areas where solvent spills or disposal occurred. Maximum contaminant concentrations measured, along with cleanup levels to be achieved by the remedial action at Operable Unit 5 for both groundwater and surface water, are presented below in Table 1.

Table 1. Current Contaminants of Concern at Seeps

Source ST37	*Contaminant*	*Maximum Concentration*	*Current Concentration*	*Cleanup Levels*
Groundwater (micrograms per liter)				
Seep 9	Trichloroethene	**17**	**7.4**	5
Seep 2	Benzene	**13.1**	**7.8**	5
Surface Water (micrograms per liter)				
Seep 2	Total Aromatic Hydrocarbons	**412**	**170**	10
Seep 2	Total Aqueous Hydrocarbons	**442**	**204**	15

Bold font indicates that the concentration exceeds cleanup levels.

Groundwater: Trichloroethene was detected in the shallow aquifer, which is not used as a water supply. This contaminant has most likely migrated to its southern location from upgradient sources on Base.

Surface water: Trichloroethene, total aromatic hydrocarbons, and total aqueous hydrocarbons are the contaminants of concern that are monitored in surface water at Operable Unit 5. Since publication of the Record of Decision, total aromatic hydrocarbons and total aqueous hydrocarbons have been added to the list of contaminants of concern. This was done to accommodate changes in testing methods and desired detection limits.

Potential Pathways and Receptors

Under current site use, direct exposure to contaminated groundwater is not possible because land use controls prohibit use of water from the shallow aquifer.

Groundwater emerges as seeps that flow into wetlands and after treatment, to Ship Creek. Hence, a potential pathway of exposure to groundwater seeps and surface water is present. However, this pathway has been mitigated by the addition of 12-inches of gravel that has been placed over the area where the seeps emerge as well as the performance of the Beaver Pond and Wetland Remediation System.

Summary

Contamination at Operable Unit 5 consists of trichloroethene in groundwater and surface water. Total aromatic hydrocarbons and total aqueous hydrocarbons are also present in surface water. The selected remedies for contaminated media at Operable Unit 5 are monitored natural attenuation and biotreatment in the Beaver Pond and Wetland Remediation System. Discharge from these two locations has always been clean. Neither Ship Creek nor the deep aquifer that supplies drinking water has been affected by Operable Unit 5 contaminants.

The recent five-year review at Operable Unit 5 determined that selected remedies are functioning as intended. These remedies have been protective of human health and the environment and as such, shall remain in place.

Information Repositories

Documents associated with these project activities are available for public review at:

Elmendorf Library
3rd Services Squadron
10480 22nd Street
Elmendorf AFB, AK 99506
(907) 552-3787

Alaska Resources Library & Information Services (ARLIS)
3211 Providence Drive
Anchorage, AK 99508
(907) 272-7547

For additional information, please contact 3rd Wing Public Affairs by telephone at (907) 552-8970, or at 10480 22nd Street, Suite 118, Elmendorf AFB, AK 99506-2500.